UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/533,322 | 05/02/2005 | Heinrich Eder | 18766 | 5295 |

272 7590 02/18/2009

SCULLY, SCOTT, MURPHY & PRESSER, P.C.
400 GARDEN CITY PLAZA
SUITE 300
GARDEN CITY, NY 11530

| EXAMINER | |
|---|---|
| GODENSCHWAGER, PETER F | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1796 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 02/18/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/533,322 | EDER, HEINRICH | |
| | Examiner | Art Unit | |
| | PETER F. GODENSCHWAGER | 1796 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13,16-21 and 23-31* is/are pending in the application.

4a) Of the above claim(s) *23-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 16-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

Applicant's reply filed December 18, 2008 has been fully considered. Claims 1-13 and 16-21 are amended, claims 14, 15, and 22 are canceled, claims 23-31 are new, and claims 1-13, 16-21, and 23-31 are pending.

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-13 and 16-21, drawn to a radiation protection apron of lead substitute material, classified in class 250, subclass 516.1.

II. Claims 23-31, drawn to a method of protecting a body, classified in class 250, subclass 505.1.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the process of use can be used with a materially different product such as an apron comprised of lead.

Newly submitted claims 23-31are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 1-13 and 16-21 are

directed towards a radiation protection apron of lead substitute material, and claims 23-31 are directed towards a method of protecting a body.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 23-31 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 5-7, 11-13, and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange (US Pat. No. 6,548,570) in view of Teleki (US Pat. No. 4,795,654).

Regarding Claims 1, 5-7, 11 and 13: For purposes of examination, it is noted that the term "up to" in the instant claims includes the amount zero as a lower limit (see MPEP 2173.05(c) II). Lange teaches a radiation shielding material for radiation from 10 to 200 keV (equivalent to a 10 to 200 kV tube) comprising 12.5 weight percent rubber (matrix material), 52 weight percent of a Sn compound, 28 weight percent of a W compound, and 6.5 weight percent of a compound such as gadolinium oxide or cerium carbonate (Gd or Ce compounds) (2:24-30, and Example 2, 5:40-56). Lange additionally teaches that the composition is part of an apron (6:30-33).

Lange does not teach the composition as comprising multiple layers of different compositions where the layer more remote from a body being protected comprise predominantly elements having a lower atomic number, and the layer closer to the body comprises predominantly elements having a higher atomic number. However, Teleki teaches a radiation protective composition of multiple layers of differing compositions where one layer may comprise U and another Sn (1:16-28 and 3:28-35). Lange and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the multilayers of Teleki with the composition of Lange and would have been motivated to do so because Teleki teaches that another layer may protect from secondary radiation emitted by a first layer (1:16-28). While the references Lange and Teleki do not instruct a use of the layers relative to a body, the claim is to a composition and not to a method of using the composition. As such, in the composition rendered obvious, the layer comprising U will implicitly be capable of being placed closer to the body than another layer.

The Office recognizes that all the claimed physical properties are not positively taught by the references, namely that for claim 1, at 60 to 140 kV the lead equivalence is from 0.25 to 2.0 mm and for claim 11 that at 60-90 kV the lead equivalence is from 0.25 to 0.6 mm. However, the references when taken together render obvious all the claimed ingredients, process steps and process conditions. Therefore, the claimed physical properties would implicitly be achieved by the disclosed composition.

Regarding Claim 12: The 6.5 weight percent of a compound such as gadolinium oxide or cerium carbonate (Gd or Ce compounds) in the composition of Lange (Example 2) anticipates a further addition of 2 to 25 weight percent of a compound that may be Ce.

Regarding Claim 16: The layer taught by Lange comprises 52% Sn (Example 2).

Regarding Claim 17: The layer taught by Lange comprises 52% by weight of Sn and 6.5% by weight of compound such as cerium carbonate (Example 2). This is equivalent to a 58.5% by weight portion of the composition, where in that portion, Sn is present in 89% by weight and cerium carbonate is present in 11% by weight.

Regarding Claim 18: While the references Lange and Teleki do not instruct a use of the layers relative to a body, the claim is to a composition and not to a method of using the composition. As such, in the composition rendered obvious, at some point the layer with higher atomic weight (and therefore lower X-ray fluorescent yield) material for example U, will be closer than the other layer to the body of either the wearer of the material, or a person near the wearer of the material.

Regarding Claim 19: Lange does not teach the composition as comprising at least three layers wherein the middle layer is comprised of elements having a lower atomic number than the two outside layers. However, Teleki teaches using a thin layer of aluminum in between layers such as tin (1:60-2:1). Lange and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the triple layer of Teleki in the composition of Lange and would have been motivated to do so because Teleki teaches that the Al layer improves the absorption properties of the structure by dispersing the X-ray or

gamma radiation (1:65-2:1). Furthermore, by definition, the middle layer will be in between layers that are both further away and closer to any body than the middle layer.

Regarding Claim 20: Lange does not teach the composition as comprising a weakly radioactive layer embedded between two non-radioactive protective layers. However, Teleki teaches using a thin layer of aluminum (a non-radioacitve layer) alternating with layers such as uranium (a weakly radioactive compound) (1:38-40 and 60-2:1). Lange and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the triple layer of Teleki in the composition of Lange and would have been motivated to do so because Teleki teaches that the Al layer improves the absorption properties of the structure by dispersing the X-ray or gamma radiation (1:65-2:1).

Regarding Claim 21: Lange further teaches that the compounds are grains (granular) (3:15-26).

Lange does not teach the specific particle size requirement of claim 21. However, it is common practice in the art to change result effective variables such as grain size distribution (See MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the grain size distribution of Lange and would be motivated to do so because Lange teaches that "grain size distribution and particle form are important parameters for achieving the desired flexibility with the maximum amount of filler material" (1:33-35).

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thiess et al. (US Pub. No. 2004/0262546) in view of Teleki (US Pat. No. 4,795,654).

Thiess et al. teaches a lead-substitute radiation absorbing composition for a garment comprising 20-40 weight percent of rubber (matrix material) with the remaining weight percent being radiation absorbing particles ([0015]). With regards to the radiation absorbing particles, Thiess et al. teaches that they may comprise 40-60 weight percent Sn, 20-30 weight percent W, and 20-30 weight percent Bi ([0025]). At 22 weight percent rubber, these ranges give weight percents relative to the entire composition of: 31.2-46.8 for Sn, and 15.6 to 31.2 for W and Bi, anticipating the ranges of claims 1-4.

Thiess et al. does not teach the composition as comprising multiple layers of different compositions where the layer more remote from a body being protected comprise predominantly elements having a lower atomic number, and the layer closer to the body comprises predominantly elements having a higher atomic number. However, Teleki teaches a radiation protective composition of multiple layers of differing compositions where one layer may comprise U and another Sn (1:16-28 and 3:28-35). Thiess et al. and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials that may be used in clothing. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the multilayers of Teleki with the composition of Thiess et al. and would have been motivated to do so because Teleki teaches that another layer may protect from secondary radiation emitted by a first layer (1:16-28). While the references Thiess et al. and Teleki do not instruct a use of the layers relative to a body, the claim is to a composition and not to a method of using the composition. As such, in the composition rendered

obvious, the layer comprising U will implicitly be capable of being placed closer to the body than another layer.

Thiess et al. does not teach the garment is specifically an apron. However, Thiess et al. teaches that it is well known in the art to use radiation protection material for garments including aprons ([0003]). At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the radiation protection material of Thiess et al. in an apron and would have been motivated to do so depending on which area of the body one wanted to protect ([0003]).

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange (US Pat. No. 6,548,570) in view of Teleki (US Pat. No. 4,795,654) as applied to claim 1 above, and further in view of Whittaker et al. (US Pat. No. 3,883,749).

Lange in view of Teleki render the composition of claim 1 obvious as set forth above.

Lange does not teach the addition of Ta, Hf, Lu, Yb, Tm, Th, U or their compounds in an amount of up to 40%. However, Whittaker et al. teaches the use of 10-45% of a uranium compound in a radiation protective garment (abstract, 3:33-37). As claim 9 depends from claim 8, and claim 10 depends from claim 9, the "additionally comprising" in each of these claims is being interpreted as material in addition to what is in the composition of the claim from which it depends. As this includes additional uranium to what may already present, the range of Whittaker et al. overlaps the claimed ranges of instant claims 8-10. Lange and Whittaker et al. are combinable because they are concerned with the same field of endeavor, namely radiation protective garments. At the time of the invention, a person of ordinary skill in the art would have

found it obvious to use the uranium of Whittaker et al. in the composition of Lange and would have been motivated to do so because Whittaker et al. teaches that uranium is especially effective at blocking x-rays in the fluoroscopically significant range of 10 to 40 keV (3:26-37).

***Response to Arguments***

Applicant's arguments filed December 18, 2008 have been fully considered but they are not persuasive.

Applicant argues that as instant claim 1 now recites that the radiation protection material is the form of an apron, the previously submitted arguments concerning the relative position of particular layers of the material with respect to a body being protected are no longer valid. However, by its very nature an apron may be worn with either side closer to one's body as an apron has two sides, both of which may be placed next to one's body. Therefore in the apron rendered obvious above, the layer comprising U will implicitly be *capable* of being placed closer to the body than another layer. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Applicant argues that some weight percentage of each metal compound is now required in the instant claims. However, it is noted that the term "up to" in the instant claims includes the amount zero as a lower limit (see MPEP 2173.05(c) II).

With regards to Applicant's arguments regarding Teleki, the broad teaching of Teleki on the advantages of a layered composition would be enough to motivate one of ordinary skill in the

art to use such an arrangement. The limitation regarding the relative proximity of each layer to a body being protected has been addressed above.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/P. F. G./
Examiner, Art Unit 1796
February 12, 2009